

## CLAIMS

1. An optical receptacle comprising:
  - a precision sleeve;
  - a stub with an optical fiber fixed to one end of an inner hole of the precision sleeve through an adhesive; and
  - a sleeve holder fixed to an outer periphery of the precision sleeve by press-fitting or through an adhesive, wherein
  - an outer periphery of the stub with an optical fiber and/or the inner hole of the precision sleeve has a surface roughness Ra value of 0.1  $\mu\text{m}$  or more and 0.5  $\mu\text{m}$  or less.
2. An optical receptacle according to claim 1, wherein the outer periphery of the stub with an optical fiber and/or the inner hole of the precision sleeve has a surface roughness Ra value of more than 0.2  $\mu\text{m}$  and a surface roughness Ry value of 4.0  $\mu\text{m}$  or less, and a difference between an average line and a peak line of surface roughness is 2.0  $\mu\text{m}$  or less.
3. An optical receptacle according to claim 1 or 2, wherein a core of the optical fiber has a concentricity of 0.5  $\mu\text{m}$  or less with respect to the outer periphery of the stub with an optical fiber.

4. An optical receptacle according to any one of claims 1 to 3, wherein the inner hole of the precision sleeve has a larger inner diameter by 0 to 1.5  $\mu\text{m}$  than an outer diameter of an optical fiber connector ferrule.

5. An optical receptacle according to any one of claims 1 to 4, wherein a capillary of the stub with an optical fiber is formed of crystallized glass.

6. An optical receptacle according to any one of claims 1 to 5, wherein the precision sleeve is formed of glass or crystallized glass.

7. An optical receptacle according to claim 5 or 6, wherein the crystallized glass has a crystal grain size of 0.1  $\mu\text{m}$  to 1.0  $\mu\text{m}$ , and the crystallized glass contains crystals in an amount of 30 to 70 mass%.

8. An optical receptacle according to any one of claims 1 to 7, wherein the adhesive contains 10 vol% or more of fillers having a maximum particle size of 0.5  $\mu\text{m}$  or less and an average particle size of 0.3  $\mu\text{m}$  or less.